

APPENDIX 1

Cambridge Instruments QUANTIMET 970QUIPS/MX: V08.00
 USER:
 5 ROUTINE : CONWID

NAME = CONWID
 DOES = % AREA. CONVOLUTED WIDTH. & ANISOTROPY
 HISTOGRAMS
 10 AUTH = B. KRESSNER
 DATE = 17 FEB 85
 DATE = 18 MAY 2000. RECENT ADAPTATION OF MBPAS3
 COND = Cambridge MACROVIEWER: 50 mm EL-NIKOR Lens:
 NO extension tubes: 4 100-watt floods; f/8; scanner pole posn 43cm;
 15 Plate (1/4 in.) glass over 4x5 Polaroid Photos

Enter specimen identity
 Scanner (No. 2 Chalnicon LV = 0.00 SENS= 2.33 PAUSE)
 Load Shading Corrector (pattern -MBLOWN)
 20 Calibrate User Specified (Cal Value = 2.962 microns per pixel)

SUBRTN STANDARD
 TOTANISOT := 0.
 TOTFIELDS := 0.
 25 PERCAREA := 0.
 TOTPERCAR:= 0.
 STAGEX := 10000.
 STAGEY := 10000.

30 For MONTAGE = 1 to 2

Stage Move (STAGEX, STAGEY)
 Stage Scan (X Y)
 scan origin STAGEX STAGEY
 35 field size 85500.0 56667.0
 no of fields 3 4)

Scanner (No. 2 Chalnicon LV=0.00 SENS = 2.33 PAUSE)

40 For FIELD

Scanner (No. 2 Chalnicon AUTO-SENSITIVITY LV= 0.00)
 Image Frame is Rectangle (X: 48, Y: 36, W: 800, H: 622,)
 Live Frame is Standard Live Frame
 45 Detect 2D (Darker than 32. Delin)

Amend(OPEN by 1)
 Psuedo-Colour Setup - Load Binary A of LUT GREY
 with colour (R 0,G 0,B 0)
 Measure field - Parameters into array FIELD
 5 ANISOT := FIELD ANISOTROPY
 ANISOT := 1./ ANISOT
 Distribute COUNT vs ANISOT (Units UNITS)
 into ANISOT from 0.00 to 1.50 into 15 bins, differential
 TOTANISOT := TOTANISOT + ANISOT
 10 TOTFIELDS := TOTFIELDS + 1.
 PERCAREA := 100. * FIELD AREAFARCT
 TOTPERCAR:= TOTPECAR + PERCAREA

 15 Distribute COUNT vs PERCAREA (Units % AREA)
 into GRAPH1 from 0.00 to 90.00 into 15 bins. differential

 Live Frame is Standard Live Frame
 Measure feature AREA PERIMETER LENGTH ROUNDNESS
 into array FEATURE1 (of 750 features and 7 parameters)
 20 FEATURE1 CALC := ((4. *AREA/PI)^0.50000)
 FEATURE1 CALC.C := 0.9000 * ((4. * AREA /
 PERIMETER) * (1. / ROUNDNESS) ^0.25000)

 25 FEATURE1 CALC.C := CALC.C / CAL.CONST
 Accept FEATURE1 CALC.C from 3. to 1000.
 FEATURE1 CALC.C := CALC.C * CAL.CONST

 30 Distribution of COUNT (Units COUNT) v CALC.C (Units
 MICRONS)
 from FEATURE1 in HISTO1 from 1.000 to 1000.
 in 15 bins (LOG)

 35 Distribution of AREA (Units SQ MICRONS) v CALC.C (Units
 MICRONS)
 from FEATURE1 in HIST04 from 1.000 to 1000.
 in 15 bins (LOG)

 40 FEATURE1 CALC := CALC / CAL.CONST
 Accept FEATURE1 CALC from 3. to 1000.
 FEATURES1 CALC := CALC * CAL.CONST

 45 Distribution of COUNT (Units COUNT) v CALC (Units
 MICRONS)
 from FEATURE1 in HIST03 from 1.000 to 1000.

in 15 bins (LOG)

Stage Step

5 Next FIELD

Pause Message

PLEASE POSITION THE SECOND SET OF PHOTOS

Pause

10

Next

Print "

Print Distribution (GRAPH1, differential, bar chart, scale = 0.00)

15

Print "FIELD COUNT vs PERCENT AREA HISTOGRAM"

Print "

Print "AVE % AREA = " , TOTPERCAR / TOTFIELDS

Print "

Print "

20

Print Distribution (HIST01, differential, bar chart, scale = 0.00)

Print "PORE COUNT VS CON WIDTH (um)"

For LOOPCOUNT = 1 to 15

Print "

Next

25

Pause

Print Distribution (HIST04, differential, bar chart, scale = 0.00)

Print "CUM PORE A % VS CON WIDTH (um)"

Print "

Print "

30

Print Distribution (ANISOT, differential, bar chart, scale = 0.00)

Print "# OF FIELDS vs ANISOTROPY"

Print "

Print "

Print "AVERAGE PORE ANISOTROPY (TAN THETA) = " ,

35 TOTANISOT / TOTFIELDS

Print "

Print "TOTAL SCANNED AREA = " , CL, FRAREA * FIELDNUM

/ (1. * 10. ^8.). " SQ CM"

For LOOPCOUNT = 1 to 8

40 Print "

Next

END OF PROGRAM

APPENDIX 2

Cambridge Instruments QUANTIMET 970QUIPS/MX: V08.02 USER:
ROUTINE: FUZZIO

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5      NAME =      FUZZB
      DOES =      PR/EL ON TISSUES; GETS HISTOGRAM
      AUTH =      B.E. KRESSNER
      DATE =      10 DEC 97
10     COND =      MACROVIEWER; DCI 12X12; FOLLIES PINK
          FILTER; 3X3 MASK 60 MM MICRO-NIKKO,F/4; 20
          MM EXTENSION TUBES; 2 PLATE (GLASS)
          FIXTURE MICRO-NIKKOR AT FULL EXTENSION
          FOR MAX MAG!!!!
15     ROTATE CAM 90 deg SO THAT IMAGE ON RIGHT
          SIDE!!
          ALLOWS TYPICAL PHOTO

20     Enter specimen identity
      Scanner      (No. 1 Chalnicon LV= 0.00 SENS= 2.36 PAUSE)
      Load Shading Corrector( pattern - FUZZ7 )
      Calibrate User Specified (Cal Value - 9.709 microns      per pixel)

25     SUBRTIN STANDARD

      TOTPREL := 0.
      TOTFIELDS := 0.
      PHOTO := 0.
      MEAN := 0.

30     If PHOTO = 1. then
      Pause Message
      WANT TYPICAL PHOTO (1 YES; 0 NO)?
      Input PHOTO
      Endif

35     If PHOTO = 1. then
      Pause Message
      INPUT MEAN VALUE FOR PR/EL
      Input MEAN
      Endif

40     For SAMPLE =      1 to      2
      If SAMPLE = 1. then

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STAGEX    := 36000.
STAGEY    := 144000.
Stage Move (STAGEX,STAGEY)
Pause Message
5  please position fixture

Pause
STAGEX    := 120000.
STAGEY    := 144000.
10 Stage Move (STAGEX,STAGEY)
Pause Message
please focus
Detect 2D  (Darker than 54, Delin PAUSE)
STAGEX    := 36000.
15 STAGEY    := 144000.
Endif
If SAMPLE = 2. then
STAGEX    := 120000.
STAGEY    := 44000.
20 Stage Move (STAGEX,STAGEY)
Pause Message
please focus
Detect 2D  (Darker than 54, Delin)
STAGEX    := 36000.
25 STAGEY    := 44000.
Endif
StageMove ( STAGEX,STAGEY)
Stage Scan (      X      Y
                  scan origin STAGEX STAGEY
30                  field size   6410.0   78000.0
                  no of fields 30          1  )

For FIELD
If TOTFIELDS = 30. then
35 Scanner (No. 1 Chalnicon AUTO-SENSITIVITY LV=0.01)
Endif
Live Frame is Standard Image Frame
Image Frame is Rectangle( X: 26, Y: 37, W: 823, H: 627, )

40 Scanner      (No. 1 Chalnicon AUTO-SENSITIVITY LV= 0.01 )
Image Frame is Rectangle ( X: 48, Y: 37, W: 803, H: 627, )
Detect 2D  ( Darker than 54, Delin )
Amend( OPEN by 0 )
Measure field - Parameters into array FIELD
45 BEFORPERI := FIELD PERIMETER

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Amend(OPEN by 10)
 Measure field - Parameters into array FIELD
 AFTPERIM:= FIELD PERIMETER

5 PROVEREL:= ((BEFORPERI - AFTPERIM) / (I.FRAME.H *
 CAL.CONST))
 TOTPREL := TOTPREL + PROVEREL

10 TOTFIELDS:= TOTFIELDS + 1.

If PHOTO ~ 1. then
 If PROVEREL > (0.95000 * MEAN) then
 If PROVEREL < (1.0500 * MEAN) then

15 Scanner (No. 1 Chalnicon AUTO-SENSITIVITY LV = 0.01 PAUSE)
 Detect 2D (Darker than 53 and Lighter than 10, Delin PAUSE
 Endif
 Endif
 Endif

20 Distribute COUNT vs PROVEREL (Units MM/MM)
 into GRAPH from 0.00 to 5.00 into 20 bins, differential

Stage Step

25 Next FIELD
 Next

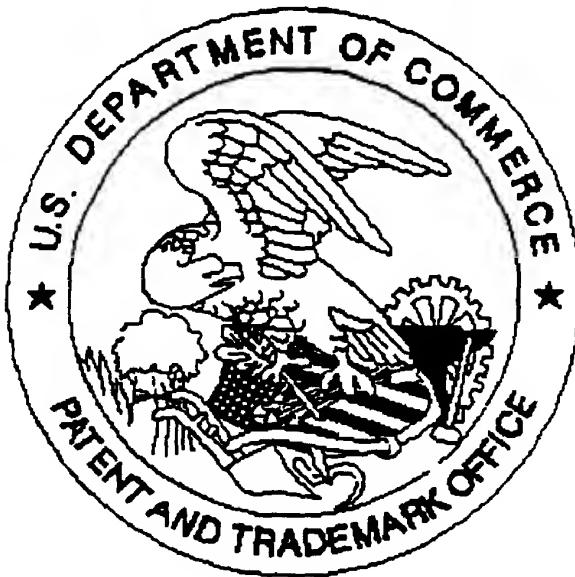
Print " "
 Print "AVE PR-OVER-EL (UM/UM)=", TOTPREL / TOTFIELDS

30 Print " "
 Print "TOTAL NUMBER OF FIELDS =", TOTFIELDS
 Print " "
 Print "FIELD HEIGHT (MM)=", I.FRAME.H * CAL.CONST / 1000
 Print " "
 Print " "
 Print Distribution (GRAPH, differential, bar chart, scale= 0.00)
 For LOOPCOUNT = 1 to 26
 Print " "
 Next

35 Print " "
 Print Distribution (GRAPH, differential, bar chart, scale= 0.00)
 For LOOPCOUNT = 1 to 26
 Print " "
 Next

40 END OF PROGRAM

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Pages 46-51 of the spec are appendix.

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